

Environmental Protection Agency

Pt. 60, App. A-3, Meth. 5I

the PQL of 3 mg by assuring that sampling probes are very clean (perhaps confirmed by low blank weights) before use in the field. They should also use low tare weight sample containers, and establish a well-controlled balance room to weigh the samples.

3. Definitions.

3.1 *Light Weight Filter Housing.* A smaller housing that allows the entire filtering system to be weighed before and after sample collection. (See. 6.1.3)

3.2 *Paired Train.* Sample systems trains may be operated as co-located trains (two sample probes attached to each other in the same port) or as simultaneous trains (two separate trains operating from different ports at the same time).

4. Interferences.

a. There are numerous potential interferences that may be encountered during performance of Method 5I sampling and analyses. This Method should be considered more sensitive to the normal interferences typically encountered during particulate testing because of the low level concentrations of the flue gas stream being sampled.

b. Care must be taken to minimize field contamination, especially to the filter housing since the entire unit is weighed (not just the filter media). Care must also be taken to ensure that no sample is lost during the sampling process (such as during port changes, removal of the filter assemblies from the probes, etc.).

c. Balance room conditions are a source of concern for analysis of the low level samples. Relative humidity, ambient temperatures variations, air draft, vibrations and even barometric pressure can affect consistent reproducible measurements of the sample media. Ideally, the same analyst who performs the tare weights should perform the final weights to minimize the effects of procedural differences specific to the analysts.

d. Attention must also be provided to weighing artifacts caused by electrostatic charges which may have to be discharged or neutralized prior to sample analysis. Static charge can affect consistent and reliable gravimetric readings in low humidity environments. Method 5I recommends a relative humidity of less than 50 percent in the weighing room environment used for sample analyses. However, lower humidity may be encountered or required to address sample precision problems. Low humidity conditions can increase the effects of static charge.

e. Other interferences associated with typical Method 5 testing (sulfates, acid gases, etc.) are also applicable to Method 5I.

5. Safety.

Disclaimer. This method may involve hazardous materials, operations, and equipment.

This test method may not address all of the safety concerns associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability and observe all regulatory limitations before using this method.

6. Equipment and Supplies.

6.1 Sample Collection Equipment and Supplies. The sample train is nearly identical in configuration to the train depicted in Figure 5-1 of Method 5. The primary difference in the sample trains is the light-weight Method 5I filter assembly that attaches directly to the exit to the probe. Other exceptions and additions specific to Method 5I include:

6.1.1 Probe Nozzle. Same as Method 5, with the exception that it must be constructed of borosilicate or quartz glass tubing.

6.1.2 Probe Liner. Same as Method 5, with the exception that it must be constructed of borosilicate or quartz glass tubing.

6.1.3 Filter Holder. The filter holder is constructed of borosilicate or quartz glass front cover designed to hold a 47-mm glass fiber filter, with a wafer thin stainless steel (SS) filter support, a silicone rubber or Viton O-ring, and Teflon tape seal. This holder design will provide a positive seal against leakage from the outside or around the filter. The filter holder assembly fits into a SS filter holder and attaches directly to the outlet of the probe. The tare weight of the filter, borosilicate or quartz glass holder, SS filter support, O-ring and Teflon tape seal generally will not exceed approximately 35 grams. The filter holder is designed to use a 47-mm glass fiber filter meeting the quality criteria in of Method 5. These units are commercially available from several source testing equipment vendors. Once the filter holder has been assembled, desiccated and tared, protect it from external sources of contamination by covering the front socket with a ground glass plug. Secure the plug with an impinger clamp or other item that will ensure a leak-free fitting.

6.2 Sample Recovery Equipment and Supplies. Same as Method 5, with the following exceptions:

6.2.1 Probe-Liner and Probe-Nozzle Brushes. Teflon or nylon bristle brushes with stainless steel wire handles, should be used to clean the probe. The probe brush must have extensions (at least as long as the probe) of Teflon, nylon or similarly inert material. The brushes must be properly sized and shaped for brushing out the probe liner and nozzle.

6.2.2 Wash Bottles. Two Teflon wash bottles are recommended however, polyethylene wash bottles may be used at the option of the tester. Acetone should not be stored in